

U.S. Application No.: 10/614,095  
Response to Office action of May 14, 2007  
Attorney Docket No.: FSF-031401

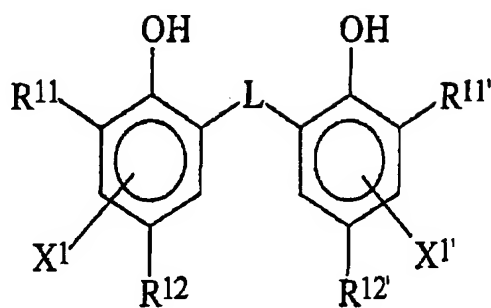
**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1.(currently amended) A black-and-white photothermographic material that forms a black-and-white image by a silver image, the black-and-white photothermographic material comprising, on one surface of a substrate, photosensitive silver halide grains having a core/shell structure, a non-photosensitive organic silver salt, a reducing agent and a binder, wherein said photosensitive silver halide grains include at least iridium and a metal selected from the group consisting of iron, copper, rhodium and ruthenium, and 90 % or more of a total iridium amount contained in the silver halide grains is contained in a core portion of the grain providing that, the core portion of the grain corresponds to 50 % of the total mol% of silver halide in the grain, and at least 50 % of a total amount of the metal selected from the group consisting of iron, copper, rhodium and ruthenium contained in the silver halide grains is contained in the shell portion of the grain, wherein the reducing agent is a bisphenol compound represented by the following formula (R):

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formula (R)

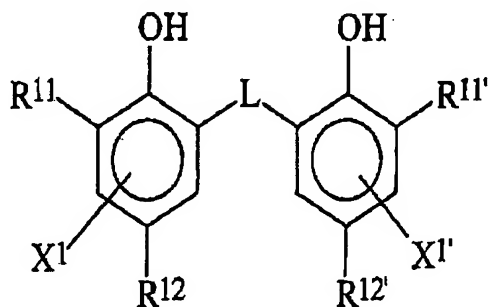
wherein, in formula (R),  $R^{11}$  and  $R^{11'}$  each independently represents an alkyl group with 1 to 20 carbon atoms;  $R^{12}$  and  $R^{12'}$  each independently represents a hydrogen atom or a substituent that can substitute the benzene ring; L represents -S- or  $-CHR^{13}-$ ;  $R^{13}$  represents a hydrogen atom or an alkyl group with 1 to 20 carbon atoms; and  $X^1$  and  $X^{1'}$  each independently represents a hydrogen atom or a group that can substitute the benzene ring;

and wherein the silver halide is silver bromide, silver iodobromide or silver iodide.

2. (currently amended) A black-and-white photothermographic material that forms a black-and-white image by a silver image, the black-and-white photothermographic material comprising, on one surface of a substrate, photosensitive silver halide grains having a core/shell structure, a non-photosensitive organic silver salt, a reducing agent and a binder, wherein said

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photosensitive silver halide grains include at least iridium and a metal selected from the group consisting of iron, copper, rhodium and ruthenium, and 90 % or more of a total iridium amount contained in the silver halide grains is contained in a core portion of the grain providing that the core portion of the grain corresponds to 30 % of the total mol% of silver halide in the grain, and at least 70 % of a total amount of the metal selected from the group consisting of iron, copper, rhodium and ruthenium contained in the silver halide grains is contained in the shell portion of the grain, wherein the reducing agent is a bisphenol compound represented by the following formula (R)



formula (R)

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wherein, in formula (R),  $R^{11}$  and  $R^{11'}$  each independently represents an alkyl group with 1 to 20 carbon atoms;  $R^{12}$  and  $R^{12'}$  each independently represents a hydrogen atom or a substituent that can substitute the benzene ring;  $L$  represents -S- or -CHR<sup>13</sup>-;  $R^{13}$  represents a hydrogen atom or an alkyl group with 1 to 20 carbon atoms; and  $X^1$  and  $X^{1'}$  each independently represents a hydrogen atom or a group that can substitute the benzene ring;

and wherein the silver halide is silver bromide, silver iodobromide or silver iodide.

3. (previously presented) A photothermographic material according to claim 1, wherein said metal selected from the group consisting of iron, copper, rhodium and ruthenium is iron or ruthenium.

4. (original) A photothermographic material according to claim 1, wherein said photosensitive silver halide grains have an average particle size of 10 to 50 nm.

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5. (original) A photothermographic material according to claim 1, wherein an amount of iridium in the silver halide grains is from  $1 \times 10^{-8}$  to  $1 \times 10^{-2}$  mol per 1 mol of silver halide.

6. (previously presented) A photothermographic material according to claim 1, wherein an amount of the metal selected from the group consisting of iron, copper, rhodium and ruthenium in the silver halide grains is from  $1 \times 10^{-8}$  to  $1 \times 10^{-2}$  mol per 1 mole of silver halide.

7. (original) A photothermographic material according to claim 1, wherein the photosensitive silver halide grains are chemically sensitized by one of a sulfur sensitizing method, a selenium sensitizing method, and a tellurium sensitizing method.

8. (original) A photothermographic material according to claim 1, wherein the photosensitive silver halide grains are gold sensitized.

9. (original) A photothermographic material according to claim 1,

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wherein the photosensitive silver halide grains are reduction sensitized.

10. (original) A photothermographic material according to claim 1, further comprising a fragmentable electron donating sensitizer (FED sensitizer).

11. (canceled)

12. (original) A photothermographic material according to claim 1, wherein the photosensitive silver halide grains have a core/shell structure of two to five layers.

13. (withdrawn) A method of producing photosensitive silver halide grains to be employed in a photothermographic material including, on a same surface of a substrate, photosensitive silver halide grains, a non-photosensitive organic silver salt, a reducing agent and a binder, wherein the photosensitive silver halide grains include iridium and a metal of groups 3 to 10 of the periodic table other than iridium, and 90 % or more of a total iridium amount is added by the time that an added amount of silver nitrate reaches 30 % of a total amount of

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silver nitrate.

14. (withdrawn) A method of producing photosensitive silver halide grains according to claim 13, wherein said metal of groups 3 to 10 of the periodic table other than iridium is selected from the group consisting of ruthenium, iron, osmium, and rhodium.

15. (withdrawn) A method of producing photosensitive silver halide grains according to claim 13, wherein said photosensitive silver halide grains have an average particle size of 10 to 50 nm.

16. (withdrawn) A method of producing photosensitive silver halide grains according to claim 13, wherein a compound of the iridium and a solution thereof are directly added to a reaction vessel for silver halide:

17. (withdrawn) A method of producing photosensitive silver halide grains according to claim 13, wherein a compound of the metal other than iridium and a solution thereof are directly added to a reaction vessel for silver halide.

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18. (withdrawn) A method for producing photosensitive silver halide grains according to claim 13, wherein the photosensitive silver halide grains have a core/shell structure.

19. (withdrawn) A method for producing photosensitive silver halide grains according to claim 18, wherein a core portion and a shell portion of the photosensitive silver halide grain are prepared from separate halogen solutions, and a compound of the iridium is added in advance to a halogen solution to be used for forming the core portion.

20. (withdrawn) A method for producing photosensitive silver halide grains according to claim 18, wherein a core portion and a shell portion of the photosensitive silver halide grain are prepared from separate halogen solutions, and the metal of groups 3 to 10 of the periodic table other than iridium is added in advance to a halogen solution to be used for forming the shell portion.